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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/003,905

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7590

04/22/2004

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EXAMINER

GURZO, PAUL M

ART UNIT

PAPER NUMBER

2881

DATE MAILED: 04/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/003,905

Applicant(s)

SCOTT ET AL.

Examiner

Paul Gurzo

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-106 is/are pending in the application.
- 4a) Of the above claim(s) 37-106 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-18 and 33-36 is/are allowed.
- 6) ☒ Claim(s) 1-13 and 19-31 is/are rejected.
- 7) ☒ Claim(s) 14 and 32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-692)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-13 and 19-31 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ray (5,861,550).

Regarding claim 1, 550 teaches a laser device comprising a target position (78 or 80), an optical component (76) separated a distance from the target position, a laser energy source (32) separated a distance from the target greater than the distance of the optical component and target, and a laser source manipulation mechanism (14 and 22) that positions the laser source (col. 4, lines 9 - 56 and Fig. 1). 550 does not explicitly teach that the mechanical resolution is less than that spatial resolution. However, it does teach that probe microscopes overcome the resolution limits of previous technologies (col. 1, lines 23-24), and the mechanical adjusting and optical positioning will act in a manner to increase resolution. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to increase resolution for increased detection schemes.

Regarding claims 2 and 3, 550 teaches a vertical and lateral index (14 and 22) that is used for aligning the laser (Abstract), and a pivot point (16) for lateral motion, and it is obvious that some type of reference point is used for proper aligning and pivoting.

Regarding claims 4 and 5, 550 teaches that prior art uses a vacuum chamber to housed the target (col. 1, lines 20-21).

Regarding claims 6,7,22, and 23, 550 teaches a lens (76) and a multi-element optics is a well-known optical component.

Regarding claims 8,9,24, and 25, the use of mirrors (38,44, etc.) teaches on the use of a virtual source, and 550 deals with a scanning microscope.

Regarding claims 10-12, and 26, Fig. 1, 1A, and 1C clearly depict a lateral and vertical rotation during the respective motion, and the lateral and vertical axes intersect where the laser energy emanates (Fig. 1). It is obvious that ratio of distances can be altered based on the lateral and vertical displacement, and Fig. 1 depicts both mechanical and spatial resolution mechanisms.

Regarding claims 13, 30, 31, the use of appropriate linkages and gimbals is well known in the art of mechanical control.

Regarding claims 19 and 20, the above-applied prior art teaches an optical component (76), a laser energy source (32), a laser source manipulation mechanism linking vertical (22) and lateral (14) motion and this leads to alignment of the laser during motion (Abstract). Further, Fig. 1, clearly depicts the claimed source to component distance and target to component distance, and it is obvious that the displacement is such to increase resolution.

Regarding claims 21 and 27-29, Fig. 1 clearly depicts the claimed linkage of vertical and lateral laser motions to the appropriate index, and it depicts a pivot (16) for source motion coincident with the center of vertical pivot for laser source motion (col. 3, lines 9-56), and it is obvious that the vertical index and lateral index comprise a line.

Allowable Subject Matter

Art Unit: 2881

Claims 15-18 and 33-36 are allowed. The closest prior art of record does not teach the use of a laser device with a target, lens, laser source, and manipulation mechanism. However, they do not teach that a desorbed energy detection cell is used.

Claims 14 and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The closest prior art of record does not teach the use of a desorbed energy detection cell.

Response to Arguments

Applicant's arguments filed 2/20/04 have been fully considered but they are not persuasive. Applicant argues that the prior art does not teach the appropriate mechanical and spatial resolutions. According to Applicant, the mechanical resolution corresponds to the controlled displacement per step of the motors used to move the source and the spatial resolution corresponds to the displacement of the laser energy at the target position (paragraph 0026). Using these definitions, the prior art meets the limitations of claim 1 because 550 teaches that the laser energy source (32) is driven in both the lateral and vertical directions by the corresponding drivers (14 and 22) (col. 4, lines 9-22 and Fig. 1). Because these drivers move the laser energy source in the desired direction, it is obvious that the mechanical resolution will change accordingly. Further, this change will effect the mechanical resolution so that it is greater or less than the spatial resolution so that the desired positioning occurs.

Regarding Applicant's arguments for claim 2, the vertical and lateral index intersect as taught above. Upon close examination of the claim language, it is not clear that the intersection must be part of the optical component. Just because the intersection is defined for the optical

Art Unit: 2881

component does not lead to an inductive leap that the intersection must be part of the component. Rather, it is clear that as long as a vertical and lateral index intersection is defined within the system that it will define the optical component because this intersection is used to align the laser light to the optical component for target impingement.

Regarding Applicant's arguments for claim 3, 550 teaches a mechanical pivot (16) and a reference point (64). Applicant argues that just because these parts are taught does not mean that they are related. On the contrary, the vertical driver (22) creates a moving frame of reference (64) (col. 4, lines 47-56). The vertical driver is part of the mechanical index as taught above, and it is clear that the pivot point (16) and the reference point (64) are also part of the mechanical index.

Regarding Applicant's arguments for claims 4 and 5, Applicant argues that the sample is not placed in a vacuum chamber within a high magnetic field. 550 teaches that prior art uses a vacuum to house the sample as stated above, therefore it is the position of the Examiner that it is obvious that their sample can also be housed in such a chamber. Further, 550 teaches that the sample can be located with a high magnetic field (col. 1, lines 36-39). Using these teachings, it is obvious that the sample can be held in a vacuum chamber within a high magnetic field because 550 teaches such a system is prior art. Further, only the sample is held in such a chamber, so it is obvious that the electro-mechanical parts will be located outside this adverse environment.

Regarding Applicant's arguments for claim 10, the laser energy source is referenced by reference 32, and it is obvious that the vertical and lateral drivers will make up part of the source as shown in the Fig. 1 of both the prior art and Applicant's figure. 550 teaches a lateral and vertical driver as stated above and both of these drivers can rotate accordingly (col. 4, lines 9-

Art Unit: 2881

56). The drivers and laser energy emission location are all viewed as part of the laser source, and the lateral axis and vertical axis intersect (Fig. 1), and it is at this intersection that the energy emanates.

Regarding Applicant's arguments for claim 11, see arguments presented above for claim 1.

Regarding Applicant's arguments for claim 12, 550 teaches that the distance H can be changed by using the vertical and lateral drivers as stated above. Because these drivers change the distance H, the relationship between the mechanical and spatial resolutions will change accordingly.

Regarding Applicant's arguments for claim 13, according to Applicant, a Peaucellier linkage is merely a linkage of arms (paragraph 0039). 550 teaches drivers (14 and 22) and a holder (20) that are all viewed as arms and they are all linked. Examiner interprets this teaching to read on the claimed Peaucellier linkage. If Applicant disagrees with this interpretation, then additional claim language is needed to describe how the claimed linkage differentiates the prior art.

Regarding Applicant's arguments for claim 19, see arguments presented above for claims 1 and 2.

Regarding Applicant's arguments for claims 27 and 28, interpreting col. 4, line 9-56 and Fig. 1, 550 teaches both lateral and vertical index that intersects as stated above, and the drivers that are responsible for the source motion are linked to the index.

Art Unit: 2881

Regarding Applicant's arguments for claim 29, Applicant is directed to Fig. 1 which clearly depicts a manipulation mechanism with a pivot (16) for lateral motion (14) which is approximately coincident with the lateral index and vertical index (22).

Regarding Applicant's arguments for claims 30 and 31, according to Applicant, a gimbal system is a vertical index frame linked to a lateral index frame at pivots (paragraph 0030). 550 teaches a vertical index (22) and lateral index (14) that are linked to a pivot (16). Examiner interprets this teaching to read on the claimed gimbals. If Applicant disagrees with this interpretation, then additional claim language is needed to describe how the claimed gimbal differentiates the prior art.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

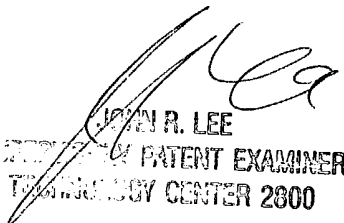
Art Unit: 2881

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Gurzo whose telephone number is (571) 272-2472. The examiner can normally be reached on M-Fri. 7:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Lee can be reached at (571) 272-2477. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

PMG
April 16, 2004


JOHN R. LEE
SUPERVISOR OF PATENT EXAMINER
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